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A new mechanism for THz-frequency radiation generation: Nonlinear strain waves in piezoelectrics[1] EVAN REED, MICHAEL ARMSTRONG, Lawrence Livermore National Laboratory — Using molecular dynamics simulations and analytics, we show that extremely large strain amplitude THz frequency acoustic waves can spontaneously form in crystalline GaN at the front of a shock wave and generate THz frequency radiation at an interface with AlN or another piezoelectric material. This new mechanism for the generation of THz radiation can be realized using a table-top ultrafast laser and has fundamentally different limiting properties than existing nonlinear optical ultrafast techniques for THz generation.

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